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ABSTRACT

When norming tests, it may be preferable to use the matrix sampling technique. The results from the samples may be used to estimate what the distribution of scores would have been if each subject had taken all the items. This paper compares four methods for making these estimates. The sample size made it possible to compare the techniques in a more realistic way than had other studies with much smaller sample sizes. Differences between the criterion distribution and the estimates are tabled. Conclusions and limitations are stated. (Author)

13.1

A COMPARISON OF THREE TECHNIQUES AVAILABLE TO ESTIMATE TOTAL-TEST SCORE DISTRIBUTION FOLLOWING MATRIX SAMPLING [1,2]

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A continuing problem in educational measurement is the norming of standardized tests. Because such tests must be of reasonable length to help assure high reliability, they frequently require long periods of time for administration. It is this very length that may deny a test developer access to representative norms since educators are not apt to permit the use of an excessive amount of the time of their students for this activity. Matrix sampling can be used in such situations because it requires less time per examinee, and therefore may encourage more cooperation.

However, once the matrix sampling procedure has been concluded, the only information available is the scores of the subjects on the samples of items they took. Since the topic of interest usually is the development of norms for the total test, some way must be found to estimate what the distribution of test scores would have been if the examinees had taken all of the items rather than just a sample of them.

The purpose of this paper will be to compare the accuracy of three different techniques which are available for use in the estimation process. The results should help to clarify the differences between them.

Currently available techniques. There currently are available several approaches which can be used to estimate total-test score distributions from matrix sampling results. Most require the knowledge of the first few moments of the total-test score distribution, but these can be estimated from the matrix sample results (Lord, 1969).

One of these approaches is to use a distribution which requires only the first few moments to define it. The negative hypergeometric (Keats and Lord, 1962) has been the one most frequently appearing in the literature. The sufficient parameters are total-test mean and variance, and K. However, there is some evidence that a model distribution which requires more moments to fit it, such as the Pearson Type I, will yield better estimated distributions (Brandenburg and Forsyth, 1973).

The disadvantage of this approach is that there generally are fairly restrictive assumptions underlying the model, and one cannot be sure that any particular test does not violate them. When the assumptions are not violated, this approach works well, but the results can yield substantial errors when they are violated.

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[1]Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, 1974.

[2]Paper originally titled "A Comparison of Four Techniques Available to Estimate Total-Test Score Distribution Following Matrix Sampling." Unexpected problems in the development of a computer program to generate estimated results using the empirical Bayes' estimation technique (Lord, 1969) necessitated the elimination of those results from this paper.

A second category of approaches to the estimation of a total-test score distribution has been to predict a total-test score for each individual, and then combine the results for the individuals into a group distribution. Two different methods are available which use this approach (Kleinke, 1969 and Bunda, 1971 and 1973). A major disadvantage of Kleinke's linear prediction approach is that the predicted scores tend to cluster around a few points, resulting in a very jagged estimated total-test score distribution. Bunda's approach requires the use of a balanced incomplete block design as suggested by Knapp (1968) to estimate item covariances. The implementation of a BIBD generally is not considered practical; it only has been used in a few post hoc studies.

A third approach is the use of a strong theory, requiring weak assumptions. One example of this is the empirical Baye's estimation technique (Lord, 1969). This method uses an empirical Bayesian procedure to obtain minimum squared error estimators for total-test score parameters. Another approach involves the use of guessing-free distributions as an intermediate step (Hill, 1972 and 1973). The major disadvantage of these approaches is the requirement for large amounts of data to avoid uninterpretable results. Also, unique solutions cannot be found to any problem with either approach unless one makes some further assumptions.

Although there have been some post hoc studies which have compared two or more of these methods, the sample sizes used generally have been much smaller than they would be in a nationwide test-norming sample. Since the effectiveness of the methods is at least partially dependent upon the number of subjects used in the estimation process, there never have been any conclusive results.

This paper compares three of these techniques, one from each category. The techniques selected are those due to Lord (negative hypergeometric), Kleinke (linear prediction) and Hill (guessing-free distributions).

A post hoc comparison of these three methods of estimating total-test score distributions following matrix sampling was done using a sample size which more closely reflects the size normally encountered in a real-life testing problem. The purpose of the study to determine which method, if any, could be chosen for use in test norming situations.

Procedure. Through the kind assistance of Dr. Frederic Lord of Educational Testing Service, data were obtained on the responses of over 100,000 subjects on a 90-item test. The 90 items were randomly selected into 10 sets of 9 items each. The subjects were assigned to one of ten groups using systematic sampling; a total of 10,327 subjects were assigned to each group. Each group was assigned to an item sample. Ten total-test score distributions were estimated from the results of the item-subject samples for each of the four methods. The ten estimated distributions were then combined, by taking the mean probability for each point on the total-test score scale, to form a final estimated total-test score distribution for each method. The estimated total-test score distributions were compared to the original criterion total-test score distribution of the 103,276 subjects using two statistics: the Kolmogorov-Smirnov D and the mean deviation from criterion.

Two statistics were calculated because each has a weakness. The Kolmogorov-Smirnov D simply is the greatest difference at any point between the cumulative relative frequency distributions of the estimated and criterion distributions. It is of interest because it is the maximum error that can be made. However, it gives an advantage to estimation procedures which have severe limiting assumptions, and therefore very smooth estimated total-test score distributions (such as the negative hypergeometric). It also severely penalizes techniques which have very jagged estimates of the total-test score distribution (such as linear prediction). Thus, the second statistic, mean deviation, was calculated to help interpret the data.

Results. The estimated total-test score distributions for each of the nine samples are shown in Appendix A. A final estimated total-test score distribution was derived from these results by calculating the mean of the expected frequencies for each score across all nine samples. The resultant cumulative frequency distributions are shown in Table 1. The Kolmogorov-Smirnov D statistic and mean deviations as calculated by comparing the estimates to the criterion are shown in Table 2.

Discussion. The results shown in Tables 1 and 2 reconfirm to a large degree those found by Hill (1972). This is true even though the number of subjects used in this study was 20 times that of the earlier study. The D was lowest for the negative hypergeometric distribution, while the mean deviation was lowest for linear prediction.

A problem with the guessing-free distribution approach has been the error in estimation of higher-order moments. Hill (1972) found with sample sizes of approximately 1000 subjects, four or five moments could be estimated. With the sample sizes used in this study (10,000 subjects per sample), five or six moments could be estimated in each case. Unfortunately, it appears as though a greater number of moments must be estimated more accurately before this approach will work substantially better than the other two.

Another finding of Hill (1972) was reconfirmed with the larger sample size: the guessing-free distribution approach yields very accurate estimations in both tails. For the lowest 35 and the highest 20 scores on the total-test score distribution, error was less than one percentile.

This data analysis, of course, hardly begins to scratch the surface of answering the question of which technique should be used in any particular circumstance. The number of item samples used, the number of subjects used per sample, the inter-item correlations, the variance of item difficulties, and the shape of the total-test score distribution would have an effect on the results. Further research will be necessary before any definitive statement about the relative merit of these approaches can be made.

Table 1. Estimated Total-Test Score Distributions and Deviations from Criterion

Score	Linear Prediction (A)	Negative Hypergeometric (B)	Guessing Free Distributions (C)	Criterion Distributions (D)	(A) - (D)	(B) - (D)	(C) - (D)
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
2	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
3	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
4	0.0001	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
5	0.0001	0.0001	0.0000	0.0000	0.0001	0.0001	0.0000
6	0.0001	0.0002	0.0000	0.0000	0.0001	0.0002	0.0000
7	0.0009	0.0003	0.0000	0.0001	0.0008	0.0002	-0.0001
8	0.0009	0.0006	0.0001	0.0002	0.0007	0.0004	-0.0001
9	0.0009	0.0009	0.0002	0.0002	0.0007	0.0007	0.0000
10	0.0015	0.0014	0.0004	0.0004	0.0011	0.0010	0.0000
11	0.0020	0.0021	0.0007	0.0007	0.0013	0.0014	0.0000
12	0.0028	0.0030	0.0014	0.0010	0.0018	0.0020	0.0004
13	0.0028	0.0042	0.0024	0.0015	0.0013	0.0027	0.0009
14	0.0065	0.0056	0.0040	0.0024	0.0041	0.0032	0.0016
15	0.0065	0.0076	0.0060	0.0035	0.0030	0.0041	0.0025
16	0.0065	0.0099	0.0086	0.0050	0.0015	0.0049	0.0036
17	0.0126	0.0128	0.0117	0.0067	0.0059	0.0061	0.0050
18	0.0166	0.0163	0.0153	0.0092	0.0074	0.0071	0.0061
19	0.0211	0.0205	0.0191	0.0121	0.0090	0.0084	0.0070
20	0.0211	0.0254	0.0232	0.0156	0.0055	0.0098	0.0076
21	0.0305	0.0310	0.0276	0.0201	0.0104	0.0109	0.0075
22	0.0305	0.0376	0.0324	0.0260	0.0045	0.0116	0.0064
23	0.0305	0.0451	0.0380	0.0325	-0.0020	0.0126	0.0055
24	0.0493	0.0536	0.0446	0.0404	0.0089	0.0132	0.0042
25	0.0680	0.0631	0.0525	0.0494	0.0186	0.0137	0.0031
26	0.0779	0.0737	0.0621	0.0601	0.0178	0.0136	0.0020
27	0.0779	0.0854	0.0735	0.0717	0.0062	0.0137	0.0018
28	0.0969	0.0983	0.0865	0.0846	0.0123	0.0137	0.0019
29	0.0969	0.1123	0.1010	0.0996	-0.0027	0.0127	0.0014
30	0.0969	0.1276	0.1167	0.1163	-0.0194	0.0113	0.0004
31	0.1342	0.1441	0.1334	0.1346	-0.0004	0.0095	-0.0012
32	0.1751	0.1618	0.1508	0.1549	0.0202	0.0069	-0.0041
33	0.1925	0.1806	0.1693	0.1757	0.0168	0.0049	-0.0064
34	0.1925	0.2006	0.1890	0.1986	-0.0061	0.0020	-0.0096
35	0.2237	0.2217	0.2105	0.2234	0.0003	-0.0017	-0.0129
36	0.2237	0.2439	0.2344	0.2478	-0.0241	-0.0039	-0.0134
37	0.2434	0.2671	0.2614	0.2742	-0.0308	-0.0071	-0.0128
38	0.3035	0.2912	0.2920	0.3017	0.0018	-0.0105	-0.0097
39	0.3433	0.3161	0.3262	0.3291	0.0142	-0.0130	-0.0029
40	0.3649	0.3419	0.3636	0.3583	0.0066	-0.0164	0.0053
41	0.3844	0.3683	0.4029	0.3872	-0.0028	-0.0189	0.0157
42	0.4041	0.3953	0.4425	0.4161	-0.0120	-0.0208	0.0264
43	0.4041	0.4227	0.4804	0.4459	-0.0418	-0.0232	0.0345
44	0.4497	0.4506	0.5152	0.4761	-0.0264	-0.0255	0.0391
45	0.4952	0.4786	0.5462	0.5052	-0.0100	-0.0266	0.0410

Table 1.-- (continued)

Score	(A)	(B)	(C)	(D)	(A) - (D)	(B) - (D)	(C) - (D)
46	0.5383	0.5068	0.5733	0.5351	0.0032	-0.0283	0.0382
47	0.5595	0.5349	0.5968	0.5635	-0.0040	-0.0286	0.0333
48	0.5820	0.5629	0.6173	0.[illegible]3	-0.0093	-0.0284	0.0260
49	0.5820	[illegible].5907	0.6354	0.6[illegible]0	-0.0370	-0.0283	0.0164
50	0.6228	0.6181	0.6519	0.6453	-0.0225	-0.0272	0.0066
51	0.6440	0.6450	0.6678	0.6702	-0.0262	-0.0252	-0.0024
52	0.6825	0.6713	0.6842	0.6946	-0.0121	-0.0233	-0.0104
53	0.7186	0.6970	0.7020	0.7179	0.0007	-0.0209	-0.0159
54	0.7341	0.7218	0.7216	0.7399	-0.0058	-0.0181	-0.0183
55	0.7567	0.7458	0.7423	0.7615	-0.0048	-0.0157	-0.0192
56	0.7567	0.7687	0.7631	0.7816	-0.0249	-0.0129	-0.0185
57	0.7890	0.7907	0.7830	0.8007	-0.0117	-0.0100	-0.0177
58	0.8196	0.8115	0.8013	0.8183	0.0013	-0.0068	-0.0170
59	0.8326	0.8312	0.8179	0.8342	-0.0016	-0.0030	-0.0163
60	0.8573	0.8498	0.8326	0.8496	0.0077	0.0002	-0.0170
61	0.8679	0.8671	0.8456	0.8645	0.0034	0.0026	-0.0189
62	0.8823	0.8831	0.8574	0.8781	0.0042	0.0050	-0.0207
63	0.8919	0.8980	0.8681	0.8905	0.0014	0.0075	-0.0224
64	0.9119	0.9116	0.8781	0.9019	0.0100	0.0097	-0.0238
65	0.9203	0.9239	0.8878	0.9129	0.0074	0.0110	-0.0251
66	0.9283	0.9351	0.8975	0.9228	0.0055	0.0123	-0.0253
67	0.9433	0.9452	0.9080	0.9324	0.0109	0.0128	-0.0244
68	0.9549	0.9541	0.9197	0.9408	0.0141	0.0133	-0.0211
69	0.9585	0.9620	0.9328	0.9485	0.0100	0.0135	-0.0157
70	0.9585	0.9688	0.9467	0.9553	0.0032	0.0135	-0.0086
71	0.9685	0.9748	0.9601	0.9618	0.0067	0.0130	-0.0017
72	0.9722	0.9799	0.9715	0.9671	0.0051	0.0128	0.0044
73	0.9759	0.9842	0.9802	0.9723	0.0036	0.0119	0.0079
74	0.9838	0.9877	0.9860	0.9771	0.0067	0.0106	0.0089
75	0.9874	0.9907	0.9896	0.9811	0.0063	0.0096	0.0085
76	0.9882	0.9931	0.9918	0.9847	0.0035	0.0084	0.0071
77	0.9882	0.9949	0.9932	0.9877	0.0005	0.0072	0.0055
78	0.9928	0.9964	0.9942	0.9905	0.0023	0.0059	0.0037
79	0.9928	0.9975	0.9951	0.9926	0.0002	0.0049	0.0025
80	0.9938	0.9984	0.9957	0.9945	-0.0007	0.0039	0.0012
81	0.9974	0.9990	0.9962	0.9960	0.0014	0.0030	0.0002
82	0.9987	0.9994	0.9966	0.9973	0.0014	0.0021	-0.0007
83	0.9987	0.9996	0.9968	0.9983	0.0004	0.0013	-0.0015
84	0.9987	0.9998	0.9970	0.9989	-0.0002	0.0009	-0.0019
85	0.9987	0.9999	0.9973	0.9994	-0.0007	0.0005	-0.0021
86	0.9987	0.9999	0.9978	0.9996	-0.0009	0.0003	-0.0018
87	0.9987	0.9999	0.9982	0.9998	-0.0011	0.0001	-0.0016
88	0.9996	0.9999	0.9985	0.9999	-0.0003	0.0000	-0.0014
89	0.9999	0.9999	0.9988	0.9999	0.0000	0.0000	-0.0011
90	0.9999	0.9999	0.9999	0.9999	0.0000	0.0000	0.0000

Table 2. Kolmogorov-Smirnov D and Mean Deviation from Criterion

	Kleinke	Lord	Hill
D	.0418	.0286	.0410
Mean Deviation	.0072	.0094	.0094

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Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0	.0001	.0001	.0000	.0000	.0	.0000
5	.0	.0	.0001	.0002	.0000	.0000	.0000	.0000
6	.0	.0	.0001	.0003	.0000	.0000	.0000	.0000
7	.0029	.0029	.0002	.0006	.0000	.0000	.0000	.0001
8	.0	.0029	.0003	.0009	.0000	.0000	.0001	.0002
9	.0	.0029	.0004	.0013	.0000	.0000	.0001	.0002
10	.0	.0029	.0006	.0019	.0000	.0000	.0002	.0004
11	.0	.0029	.0008	.0027	.0000	.0000	.0003	.0007
12	.0	.0029	.0010	.0037	.0000	.0001	.0003	.0010
13	.0	.0029	.0013	.0050	.0001	.0002	.0006	.0015
14	.0165	.0194	.0016	.0066	.0001	.0003	.0008	.0024
15	.0	.0194	.0019	.0086	.0002	.0004	.0012	.0035
16	.0	.0194	.0023	.0109	.0003	.0007	.0014	.0050
17	.0	.0194	.0028	.0136	.0005	.0011	.0017	.0067
18	.0	.0194	.0032	.0169	.0007	.0019	.0025	.0092
19	.0	.0194	.0038	.0207	.0012	.0031	.0029	.0121
20	.0	.0194	.0043	.0250	.0018	.0048	.0035	.0156
21	.0504	.0697	.0049	.0299	.0026	.0074	.0044	.0201
22	.0	.0697	.0056	.0355	.0035	.0109	.0059	.0260
23	.0	.0697	.0063	.0418	.0045	.0154	.0066	.0325
24	.0	.0697	.0070	.0489	.0054	.0208	.0078	.0404
25	.0	.0697	.0078	.0567	.0062	.0270	.0091	.0494
26	.0	.0697	.0086	.0652	.0068	.0338	.0107	.0601
27	.0	.0697	.0094	.0747	.0072	.0409	.0116	.0717
28	.1004	.1701	.0103	.0849	.0074	.0483	.0128	.0846
29	.0	.1701	.0111	.0961	.0076	.0560	.0151	.0996
30	.0	.1701	.0120	.1081	.0078	.0637	.0167	.1163
31	.0	.1701	.0129	.1210	.0079	.0716	.0183	.1346
32	.0	.1701	.0138	.1348	.0078	.0794	.0202	.1549
33	.0	.1701	.0147	.1495	.0074	.0868	.0208	.1757
34	.0	.1701	.0156	.1651	.0068	.0935	.0229	.1986
35	.1614	.3316	.0165	.1816	.0063	.0998	.0248	.2234
36	.0	.3316	.0174	.1990	.0066	.1064	.0244	.2478
37	.0	.3316	.0182	.2172	.0087	.1150	.0264	.2742
38	.0	.3316	.0190	.2362	.0139	.1289	.0275	.3017
39	.0	.3316	.0198	.2560	.0229	.1518	.0274	.3291
40	.0	.3316	.0206	.2766	.0355	.1873	.0292	.3583
41	.0	.3316	.0213	.2978	.0497	.2369	.0288	.3872
42	.1770	.5086	.0219	.3198	.0624	.2993	.0290	.4161

ITEM SAMPLE # 1 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
43	.0	.5086	.0225	.3423	.0706	.3699	.0298	.4459
44	.0	.5086	.0231	.3654	.0720	.4419	.0302	.4761
45	.0	.5086	.0236	.3889	.0666	.5085	.0291	.5052
46	.0	.5086	.0240	.4129	.0562	.5647	.0299	.5351
47	.0	.5086	.0243	.4373	.0435	.6082	.0285	.5635
48	.0	.5086	.0246	.4619	.0313	.6395	.0278	.5913
49	.0	.5086	.0248	.4867	.0214	.6609	.0277	.6190
50	.1670	.6756	.0249	.5116	.0146	.6755	.0263	.6453
51	.0	.6756	.0250	.5366	.0105	.6859	.0249	.6702
52	.0	.6756	.0249	.5615	.0082	.6941	.0244	.6946
53	.0	.6756	.0248	.5863	.0068	.7010	.0233	.7179
54	.0	.6756	.0246	.6110	.0057	.7067	.0221	.7399
55	.0	.6756	.0243	.6353	.0047	.7114	.0216	.7615
56	.0	.6756	.0240	.6593	.0036	.7150	.0201	.7816
57	.1388	.8144	.0235	.6828	.0027	.7177	.0191	.8007
58	.0	.8144	.0230	.7058	.0018	.7195	.0177	.8183
59	.0	.8144	.0224	.7283	.0012	.7207	.0159	.8342
60	.0	.8144	.0218	.7500	.0008	.7215	.0153	.8496
61	.0	.8144	.0211	.7711	.0009	.7224	.0149	.8645
62	.0	.8144	.0203	.7914	.0020	.7243	.0136	.8781
63	.0	.8144	.0194	.8108	.0049	.7292	.0125	.8905
64	.1014	.9158	.0185	.8293	.0108	.7401	.0113	.9019
65	.0	.9158	.0176	.8469	.0204	.7605	.0110	.9129
66	.0	.9158	.0166	.8636	.0319	.7923	.0100	.9228
67	.0	.9158	.0156	.8792	.0410	.8334	.0095	.9324
68	.0	.9158	.0146	.8938	.0440	.8773	.0084	.9408
69	.0	.9158	.0136	.9073	.0396	.9169	.0077	.9485
70	.0	.9158	.0125	.9198	.0301	.9470	.0068	.9553
71	.0584	.9741	.0114	.9313	.0196	.9666	.0064	.9618
72	.0	.9741	.0104	.9417	.0109	.9775	.0053	.9671
73	.0	.9741	.0094	.9511	.0052	.9827	.0052	.9723
74	.0	.9741	.0084	.9594	.0022	.9849	.0047	.9771
75	.0	.9741	.0074	.9668	.0008	.9857	.0040	.9811
76	.0	.9741	.0065	.9733	.0003	.9860	.0036	.9847
77	.0	.9741	.0056	.9789	.0004	.9865	.0030	.9877
78	.0259	1.0000	.0047	.9836	.0006	.9871	.0027	.9905
79	.0	1.0000	.0040	.9876	.0006	.9876	.0021	.9926
80	.0	1.0000	.0033	.9908	.0004	.9880	.0020	.9945
81	.0	1.0000	.0026	.9935	.0002	.9882	.0015	.9960
82	.0	1.0000	.0020	.9955	.0001	.9883	.0012	.9973
83	.0	1.0000	.0015	.9971	.0003	.9886	.0010	.9983
84	.0	1.0000	.0011	.9982	.0005	.9891	.0007	.9989
85	.0	1.0000	.0008	.9990	.0004	.9895	.0004	.9994
86	.0	1.0000	.0005	.9995	.0002	.9897	.0002	.9996
87	.0	1.0000	.0003	.9998	.0000	.9897	.0002	.9998
88	.0	1.0000	.0002	.9999	.0017	.9914	.0001	.9999
89	.0	1.0000	.0001	1.0000	.0008	.9922	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0078	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 2

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
5	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
6	.0	.0	.0000	.0001	.0000	.0000	.0000	.0000
7	.0	.0	.0001	.0001	.0000	.0000	.0000	.0001
8	.0	.0	.0001	.0003	.0001	.0001	.0001	.0002
9	.0	.0	.0002	.0004	.0001	.0002	.0001	.0002
10	.0	.0	.0003	.0007	.0003	.0006	.0002	.0004
11	.0	.0	.0004	0011	.0006	.0011	.0003	.0007
12	.0048	.0048	.0005	.0016	.0009	.0021	.0003	.0010
13	.0	.0048	.0007	.0023	.0014	.0035	.0006	.0015
14	.0	.0048	.0010	.0033	.0020	.0055	.0008	.0024
15	.0	.0048	.0013	.0045	.0026	.0081	.0012	.0035
16	.0	.0048	.0016	.0061	.0031	.0113	.0014	.0050
17	.0	.0048	.0020	.0082	.0035	.0148	.0017	.0067
18	.0186	.0234	.0025	.0107	.0037	.0185	.0025	.0092
19	.0	.0234	.0031	.0138	.0037	.0222	.0029	.0121
20	.0	.0234	.0037	.0175	.0034	.0256	.0035	.0156
21	.0	.0234	.0045	.0220	.0030	.0286	.0044	.0201
22	.0	.0234	.0053	.0273	.0026	.0312	.0059	.0260
23	.0	.0234	.0061	.0334	.0021	.0333	.0066	.0325
24	.0	.0234	.0071	.0405	.0017	.0350	.0078	.0404
25	.0543	.0778	.0081	.0487	.0013	.0363	.0091	.0494
26	.0	.0778	.0092	.0579	.0010	.0373	.0107	.0601
27	.0	.0778	.0104	.0683	.0009	.0382	.0116	.0717
28	.0	.0778	.0116	.0799	.0009	.0391	.0128	.0846
29	.0	.0778	.0129	.0929	.0010	.0401	.0151	.0996
30	.0	.0778	.0142	.1071	.0012	.0412	.0167	.1163
31	.0	.0778	.0155	.1226	.0014	.0426	.0183	.1346
32	.1100	.1878	.0169	.1395	.0016	.0442	.0202	.1549
33	.0	.1878	.0182	.1578	.0019	.0461	.0208	.1757
34	.0	.1878	.0196	.1773	.0028	.0489	.0229	.1986
35	.0	.1878	.0209	.1982	.0052	.0541	.0248	.2234
36	.0	.1878	.0222	.2204	.0106	.0647	.0244	.2478
37	.0	.1878	.0234	.2438	.0201	.0847	.0264	.2742
38	.1791	.3669	.0245	.2683	.0339	.1187	.0275	.3017
39	.0	.3669	.0256	.2939	.0507	.1694	.0274	.3291
40	.0	.3669	.0266	.3205	.0672	.2366	.0292	.3583
41	.0	.3669	.0274	.3479	.0795	.3161	.0288	.3872
42	.0	.3669	.0282	.3761	.0848	.4009	.0290	.4161
43	.0	.3669	.0288	.4049	.0819	.4828	.0298	.4459

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
44	.0	.3669	.0293	.4342	.0725	.5554	.0302	.4761
45	.2030	.5699	.0297	.4639	.0594	.6148	.0291	.5052
46	.0	.5699	.0299	.4938	.0456	.6604	.0299	.5351
47	.0	.5699	.0299	.5238	.0332	.6936	.0285	.5635
48	.0	.5699	.0299	.5536	.0233	.7168	.0278	.5913
49	.0	.5699	.0296	.5832	.0159	.7327	.0277	.6190
50	.0	.5699	.0292	.6125	.0106	.7433	.0263	.6453
51	.0	.5699	.0287	.6412	.0068	.7502	.0249	.6702
52	.1813	.7511	.0281	.6693	.0043	.7544	.0244	.6946
53	.0	.7511	.0273	.6965	.0026	.7570	.0233	.7179
54	.0	.7511	.0264	.7229	.0016	.7585	.0221	.7399
55	.0	.7511	.0254	.7483	.0013	.7599	.0216	.7615
56	.0	.7511	.0242	.7725	.0023	.7621	.0201	.7816
57	.0	.7511	.0230	.7955	.0047	.7669	.0191	.8007
58	.1334	.8846	.0218	.8173	.0089	.7758	.0177	.8183
59	.0	.8846	.0205	.8378	.0145	.7903	.0159	.8342
60	.0	.8846	.0191	.8569	.0205	.8108	.0153	.8496
61	.0	.8846	.0177	.8746	.0258	.8366	.0149	.8645
62	.0	.8846	.0163	.8909	.0293	.8659	.0136	.8781
63	.0	.8846	.0149	.9058	.0304	.8962	.0125	.8905
64	.0	.8846	.0135	.9193	.0288	.9250	.0113	.9019
65	.0758	.9604	.0122	.9315	.0246	.9496	.0110	.9129
66	.0	.9604	.0109	.9424	.0189	.9686	.0100	.9228
67	.0	.9604	.0096	.9520	.0131	.9816	.0095	.9324
68	.0	.9604	.0084	.9604	.0081	.9898	.0084	.9408
69	.0	.9604	.0073	.9678	.0047	.9944	.0077	.9485
70	.0	.9604	.0063	.9741	.0025	.9969	.0068	.9553
71	.0	.9604	.0053	.9794	.0013	.9982	.0064	.9618
72	.0330	.9934	.0045	.9839	.0006	.9988	.0053	.9671
73	.0	.9934	.0037	.9876	.0003	.9991	.0052	.9723
74	.0	.9934	.0030	.9906	.0001	.9992	.0047	.9771
75	.0	.9934	.0024	.9931	.0000	.9992	.0040	.9811
76	.0	.9934	.0019	.9950	.0000	.9992	.0036	.9847
77	.0	.9934	.0015	.9964	.0000	.9993	.0030	.9877
78	.0066	1.0000	.0011	.9976	.0001	.9993	.0027	.9905
79	.0	1.0000	.0008	.9984	.0001	.9994	.0021	.9926
80	.0	1.0000	.0006	.9990	.0001	.9995	.0020	.9945
81	.0	1.0000	.0004	.9994	.0001	.9996	.0015	.9960
82	.0	1.0000	.0003	.9996	.0001	.9997	.0012	.9973
83	.0	1.0000	.0002	.9998	.0000	.9997	.0010	.9983
84	.0	1.0000	.0001	.9999	.0000	.9997	.0007	.9989
85	.0	1.0000	.0001	1.0000	.0000	.9997	.0004	.9994
86	.0	1.0000	.0000	1.0000	.0001	.9998	.0002	.9996
87	.0	1.0000	.0000	1.0000	.0001	.9999	.0002	.9998
88	.0	1.0000	.0000	1.0000	.0000	.9999	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0000	.9999	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0001	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 3

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0001	.0001	.0000	.0000	.0	.0000
2	.0	.0	.0002	.0002	.0000	.0000	.0	.0000
3	.0	.0	.0003	.0006	.0000	.0000	.0	.0000
4	.0	.0	.0006	.0012	.0000	.0000	.0	.0000
5	.0	.0	.0009	.0021	.0000	.0000	.0000	.0000
6	.0	.0	.0014	.0034	.0000	.0000	.0000	.0000
7	.0	.0	.0019	.0053	.0000	.0000	.0000	.0001
8	.0	.0	.0025	.0079	.0000	.0000	.0001	.0002
9	.0	.0	.0033	.0111	.0000	.0000	.0001	.0002
10	.0	.0	.0041	.0152	.0000	.0001	.0002	.0004
11	.0	.0	.0050	.0202	.0001	.0002	.0003	.0007
12	.0	.0	.0060	.0263	.0002	.0003	.0003	.0010
13	.0	.0	.0071	.0334	.0003	.0006	.0006	.0015
14	.0	.0	.0083	.0417	.0004	.0010	.0008	.0024
15	.0	.0	.0095	.0512	.0007	.0017	.0012	.0035
16	.0	.0	.0107	.0619	.0009	.0026	.0014	.0050
17	.0113	.0113	.0120	.0739	.0012	.0039	.0017	.0067
18	.0	.0113	.0133	.0873	.0016	.0055	.0025	.0092
19	.0	.0113	.0146	.1019	.0022	.0077	.0029	.0121
20	.0	.0113	.0159	.1178	.0032	.0109	.0035	.0156
21	.0	.0113	.0172	.1349	.0049	.0158	.0044	.0201
22	.0	.0113	.0184	.1534	.0079	.0238	.0059	.0260
23	.0	.0113	.0196	.1729	.0127	.0365	.0066	.0325
24	.0560	.0673	.0207	.1937	.0194	.0558	.0078	.0404
25	.0	.0673	.0218	.2155	.0277	.0835	.0091	.0494
26	.0	.0673	.0228	.2383	.0368	.1203	.0107	.0601
27	.0	.0673	.0237	.2619	.0455	.1657	.0116	.0717
28	.0	.0673	.0245	.2864	.0526	.2184	.0128	.0846
29	.0	.0673	.0252	.3117	.0572	.2756	.0151	.0996
30	.0	.0673	.0258	.3375	.0590	.3346	.0167	.1163
31	.1382	.2055	.0263	.3638	.0582	.3928	.0183	.1346
32	.0	.2055	.0267	.3906	.0551	.4479	.0202	.1549
33	.0	.2055	.0270	.4176	.0504	.4983	.0208	.1757
34	.0	.2055	.0272	.4448	.0448	.5431	.0229	.1986
35	.0	.2055	.0273	.4721	.0388	.5820	.0248	.2234
36	.0	.2055	.0272	.4994	.0333	.6153	.0244	.2478
37	.0	.2055	.0271	.5264	.0288	.6441	.0264	.2742
38	.2014	.4069	.0268	.5533	.0255	.6696	.0275	.3017
39	.0	.4069	.0265	.5798	.0232	.6928	.0274	.3291
40	.0	.4069	.0260	.6058	.0213	.7140	.0292	.3583
41	.0	.4069	.0255	.6313	.0193	.7334	.0288	.3872
42	.0	.4069	.0249	.6562	.0171	.7504	.0290	.4161
43	.0	.4069	.0242	.6804	.0148	.7653	.0298	.4459
44	.0	.4069	.0234	.7039	.0131	.7784	.0302	.4761
45	.2064	.6132	.0226	.7265	.0125	.7909	.0291	.5052

ITEM SAMPLE # 3 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
46	.0	.6132	.0217	.7483	.0130	.8039	.0299	.5351
47	.0	.6132	.0208	.7691	.0143	.8182	.0285	.5635
48	.0	.6132	.0199	.7890	.0157	.8339	.0278	.5913
49	.0	.6132	.0189	.8078	.0167	.8507	.0277	.6190
50	.0	.6132	.0179	.8257	.0170	.8677	.0263	.6453
51	.0	.6132	.0168	.8425	.0166	.8843	.0249	.6702
52	.1653	.7785	.0158	.8583	.0155	.8998	.0244	.6946
53	.0	.7785	.0148	.8731	.0139	.9137	.0233	.7179
54	.0	.7785	.0137	.8869	.0117	.9254	.0221	.7399
55	.0	.7785	.0127	.8996	.0092	.9346	.0216	.7615
56	.0	.7785	.0117	.9113	.0067	.9413	.0201	.7816
57	.0	.7785	.0108	.9221	.0045	.9458	.0191	.8007
58	.0	.7785	.0098	.9320	.0029	.9487	.0177	.8183
59	.0	.7785	.0089	.9409	.0018	.9505	.0159	.8342
60	.1068	.8853	.0081	.9490	.0013	.9518	.0153	.8496
61	.0	.8853	.0073	.9562	.0013	.9531	.0149	.8645
62	.0	.8853	.0065	.9627	.0016	.9547	.0136	.8781
63	.0	.8853	.0057	.9684	.0020	.9567	.0125	.8905
64	.0	.8853	.0051	.9735	.0022	.9589	.0113	.9019
65	.0	.8853	.0044	.9779	.0023	.9612	.0110	.9129
66	.0	.8853	.0039	.9818	.0024	.9637	.0100	.9229
67	.0603	.9457	.0033	.9851	.0028	.9665	.0095	.9324
68	.0	.9457	.0028	.9879	.0033	.9698	.0084	.9408
69	.0	.9457	.0024	.9903	.0038	.9736	.0077	.9485
70	.0	.9457	.0020	.9924	.0039	.9775	.0068	.9553
71	.0	.9457	.0017	.9940	.0035	.9810	.0064	.9618
72	.0	.9457	.0014	.9954	.0026	.9836	.0053	.9671
73	.0	.9457	.0011	.9965	.0017	.9853	.0052	.9723
74	.0295	.9752	.0009	.9974	.0009	.9862	.0047	.9771
75	.0	.9752	.0007	.9981	.0004	.9866	.0040	.9811
76	.0	.9752	.0005	.9986	.0004	.9870	.0036	.9847
77	.0	.9752	.0004	.9991	.0007	.9877	.0030	.9877
78	.0	.9752	.0003	.9994	.0011	.9888	.0027	.9905
79	.0	.9752	.0002	.9996	.0014	.9902	.0021	.9926
80	.0	.9752	.0002	.9997	.0017	.9920	.0020	.9945
81	.0168	.9921	.0001	.9998	.0018	.9937	.0015	.9960
82	.0	.9921	.0001	.9999	.0014	.9952	.0012	.9973
83	.0	.9921	.0000	1.0000	.0009	.9960	.0010	.9983
84	.0	.9921	.0000	1.0000	.0004	.9964	.0007	.9989
85	.0	.9921	.0000	1.0000	.0007	.9971	.0004	.9994
86	.0	.9921	.0000	1.0000	.0009	.9980	.0002	.9996
87	.0	.9921	.0000	1.0000	.0005	.9985	.0002	.9998
88	.0079	1.0000	.0000	1.0000	.0001	.9986	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0006	.9992	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0008	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 4

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
5	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
6	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
7	.0	.0	.0000	.0000	.0000	.0000	.0000	.0001
8	.0	.0	.0000	.0000	.0000	.0000	.0001	.0002
9	.0	.0	.0000	.0001	.0001	.0001	.0001	.0002
10	.0	.0	.0001	.0002	.0001	.0002	.0002	.0004
11	.0	.0	.0001	.0003	.0002	.0004	.0003	.0007
12	.0027	.0027	.0002	.0004	.0004	.0008	.0003	.0010
13	.0	.0027	.0002	.0007	.0006	.0014	.0006	.0015
14	.0	.0027	.0003	.0010	.0008	.0022	.0008	.0024
15	.0	.0027	.0005	.0015	.0011	.0033	.0012	.0035
16	.0	.0027	.0007	.0022	.0013	.0046	.0014	.0050
17	.0	.0027	.0009	.0031	.0015	.0061	.0017	.0067
18	.0	.0027	.0012	.0042	.0016	.0078	.0025	.0092
19	.0152	.0179	.0015	.0057	.0017	.0094	.0029	.0121
20	.0	.0179	.0019	.0077	.0016	.0110	.0035	.0156
21	.0	.0179	.0024	.0101	.0015	.0125	.0044	.0201
22	.0	.0179	.0030	.0130	.0013	.0138	.0059	.0260
23	.0	.0179	.0036	.0167	.0011	.0150	.0066	.0325
24	.0	.0179	.0044	.0210	.0010	.0159	.0078	.0404
25	.0433	.0612	.0052	.0262	.0009	.0168	.0091	.0494
26	.0	.0612	.0062	.0324	.0009	.0177	.0107	.0601
27	.0	.0612	.0072	.0396	.0011	.0188	.0116	.0717
28	.0	.0612	.0083	.0479	.0014	.0202	.0128	.0846
29	.0	.0612	.0095	.0575	.0018	.0220	.0151	.0996
30	.0	.0612	.0108	.0683	.0024	.0244	.0167	.1163
31	.1009	.1621	.0122	.0805	.0032	.0276	.0183	.1346
32	.0	.1621	.0137	.0942	.0046	.0322	.0202	.1549
33	.0	.1621	.0152	.1094	.0072	.0394	.0208	.1757
34	.0	.1621	.0167	.1261	.0116	.0510	.0229	.1986
35	.0	.1621	.0183	.1444	.0182	.0692	.0248	.2234
36	.0	.1621	.0199	.1643	.0267	.0960	.0244	.2478
37	.0	.1621	.0214	.1857	.0360	.1320	.0264	.2742
38	.1605	.3226	.0230	.2087	.0443	.1763	.0275	.3017
39	.0	.3226	.0245	.2331	.0496	.2259	.0274	.3291
40	.0	.3226	.0259	.2590	.0509	.2768	.0292	.3583
41	.0	.3226	.0272	.2862	.0479	.3247	.0288	.3872
42	.0	.3226	.0284	.3146	.0416	.3663	.0290	.4161
43	.0	.3226	.0295	.3441	.0336	.3999	.0298	.4459
44	.1984	.5210	.0305	.3746	.0259	.4258	.0302	.4761
45	.0	.5210	.0313	.4059	.0200	.4458	.0291	.5052

ITEM SAMPLE # 4 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
46	.0	.5210	.0319	.4377	.0168	.4626	.0299	.5351
47	.0	.5210	.0323	.4700	.0159	.4785	.0285	.5635
48	.0	.5210	.0326	.5026	.0165	.4950	.0278	.5913
49	.0	.5210	.0326	.5352	.0176	.5126	.0277	.6190
50	.2007	.7217	.0325	.5677	.0188	.5314	.0263	.6453
51	.0	.7217	.0321	.5998	.0208	.5523	.0249	.6702
52	.0	.7217	.0316	.6314	.0250	.5773	.0244	.6946
53	.0	.7217	.0309	.6623	.0318	.6091	.0233	.7179
54	.0	.7217	.0300	.6922	.0403	.6494	.0221	.7399
55	.0	.7217	.0289	.7212	.0480	.6974	.0216	.7615
56	.0	.7217	.0277	.7489	.0522	.7496	.0201	.7816
57	.1523	.8740	.0264	.7753	.0515	.8011	.0191	.8007
58	.0	.8740	.0249	.8002	.0463	.8474	.0177	.8183
59	.0	.8740	.0234	.8236	.0381	.8855	.0159	.8342
60	.0	.8740	.0218	.8454	.0290	.9145	.0153	.8496
61	.0	.8740	.0202	.8656	.0208	.9354	.0149	.8645
62	.0	.8740	.0185	.8841	.0146	.9499	.0136	.8781
63	.0863	.9603	.0168	.9009	.0103	.9603	.0125	.8905
64	.0	.9603	.0151	.9160	.0077	.9680	.0113	.9019
65	.0	.9603	.0135	.9295	.0059	.9739	.0110	.9129
66	.0	.9603	.0120	.9415	.0045	.9784	.0100	.9228
67	.0	.9603	.0105	.9520	.0034	.9819	.0095	.9324
68	.0	.9603	.0091	.9610	.0026	.9845	.0084	.9408
69	.0327	.9930	.0078	.9688	.0022	.9867	.0077	.9485
70	.0	.9930	.0066	.9754	.0019	.9886	.0068	.9553
71	.0	.9930	.0055	.9808	.0016	.9902	.0064	.9618
72	.0	.9930	.0045	.9853	.0013	.9914	.0053	.9671
73	.0	.9930	.0036	.9890	.0011	.9925	.0052	.9723
74	.0	.9930	.0029	.9919	.0012	.9937	.0047	.9771
75	.0	.9930	.0023	.9942	.0012	.9949	.0040	.9811
76	.0070	1.0000	.0017	.9959	.0011	.9960	.0036	.9847
77	.0	1.0000	.0013	.9972	.0009	.9969	.0030	.9877
78	.0	1.0000	.0009	.9981	.0008	.9977	.0027	.9905
79	.0	1.0000	.0007	.9988	.0006	.9982	.0021	.9926
80	.0	1.0000	.0005	.9993	.0003	.9986	.0020	.9945
81	.0	1.0000	.0003	.9996	.0002	.9987	.0015	.9960
82	.0	1.0000	.0002	.9998	.0001	.9988	.0012	.9973
83	.0	1.0000	.0001	.9999	.0001	.9989	.0010	.9983
84	.0	1.0000	.0001	.9999	.0000	.9989	.0007	.9989
85	.0	1.0000	.0000	1.0000	.0002	.9991	.0004	.9994
86	.0	1.0000	.0000	1.0000	.0004	.9995	.0002	.9996
87	.0	1.0000	.0000	1.0000	.0003	.9997	.0002	.9998
88	.0	1.0000	.0000	1.0000	.0001	.9998	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0001	.9999	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0001	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 5

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
5	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
6	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
7	.0	.0	.0000	.0001	.0000	.0000	.0000	.0001
8	.0	.0	.0001	.0001	.0000	.0000	.0001	.0002
9	.0	.0	.0001	.0002	.0000	.0000	.0001	.0002
10	.0	.0	.0001	.0004	.0001	.0001	.0002	.0004
11	.0017	.0017	.0002	.0006	.0001	.0002	.0003	.0007
12	.0	.0017	.0003	.0009	.0002	.0004	.0003	.0010
13	.0	.0017	.0004	.0013	.0003	.0006	.0006	.0015
14	.0	.0017	.0006	.0019	.0004	.0010	.0008	.0024
15	.0	.0017	.0008	.0027	.0006	.0016	.0012	.0035
16	.0	.0017	.0011	.0038	.0007	.0023	.0014	.0050
17	.0154	.0171	.0014	.0052	.0009	.0032	.0017	.0067
18	.0	.0171	.0018	.0069	.0010	.0042	.0025	.0092
19	.0	.0171	.0022	.0091	.0012	.0054	.0029	.0121
20	.0	.0171	.0027	.0118	.0013	.0067	.0035	.0156
21	.0	.0171	.0033	.0151	.0015	.0081	.0044	.0201
22	.0	.0171	.0040	.0191	.0016	.0098	.0059	.0260
23	.0	.0171	.0047	.0239	.0018	.0116	.0066	.0325
24	.0460	.0631	.0056	.0295	.0021	.0137	.0078	.0404
25	.0	.0631	.0065	.0360	.0024	.0161	.0091	.0494
26	.0	.0631	.0075	.0435	.0027	.0189	.0107	.0601
27	.0	.0631	.0086	.0521	.0031	.0220	.0116	.0717
28	.0	.0631	.0098	.0619	.0035	.0254	.0128	.0846
29	.0	.0631	.0110	.0730	.0037	.0291	.0151	.0996
30	.0	.0631	.0123	.0853	.0038	.0329	.0167	.1163
31	.0965	.1597	.0137	.0990	.0037	.0366	.0183	.1346
32	.0	.1597	.0150	.1140	.0039	.0405	.0202	.1549
33	.0	.1597	.0165	.1305	.0045	.0450	.0208	.1757
34	.0	.1597	.0179	.1483	.0063	.0513	.0229	.1986
35	.0	.1597	.0193	.1677	.0096	.0610	.0248	.2234
36	.0	.1597	.0207	.1884	.0149	.0758	.0244	.2478
37	.1767	.3364	.0221	.2105	.0220	.0978	.0264	.2742
38	.0	.3364	.0234	.2339	.0303	.1281	.0275	.3017
39	.0	.3364	.0247	.2586	.0387	.1668	.0274	.3291
40	.0	.3364	.0259	.2845	.0460	.2128	.0292	.3583
41	.0	.3364	.0270	.3114	.0510	.2638	.0288	.3872
42	.0	.3364	.0280	.3394	.0530	.3168	.0290	.4161
43	.0	.3364	.0288	.3682	.0523	.3692	.0298	.4459
44	.2125	.5489	.0296	.3978	.0501	.4192	.0302	.4761
45	.0	.5489	.0301	.4279	.0473	.4665	.0291	.5052

ITEM SAMPLE # 5 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
46	.0	.5489	.0306	.4585	.0447	.5112	.0299	.5351
47	.0	.5489	.0308	.4893	.0421	.5533	.0285	.5635
48	.0	.5489	.0310	.5203	.0392	.5925	.0278	.5913
49	.0	.5489	.0309	.5512	.0357	.6282	.0277	.6190
50	.0	.5489	.0307	.5819	.0323	.6604	.0263	.6453
51	.1907	.7396	.0303	.6122	.0297	.6902	.0249	.6702
52	.0	.7396	.0298	.6419	.0284	.7185	.0244	.6946
53	.0	.7396	.0291	.6710	.0277	.7462	.0233	.7179
54	.0	.7396	.0282	.6992	.0264	.7727	.0221	.7399
55	.0	.7396	.0272	.7264	.0240	.7966	.0216	.7615
56	.0	.7396	.0261	.7525	.0206	.8173	.0201	.7816
57	.0	.7396	.0249	.7775	.0176	.8349	.0191	.8007
58	.1418	.8814	.0236	.8011	.0161	.8510	.0177	.8183
59	.0	.8814	.0222	.8233	.0161	.8671	.0159	.8342
60	.0	.8814	.0208	.8442	.0165	.8836	.0153	.8496
61	.0	.8814	.0193	.8635	.0165	.9000	.0149	.8645
62	.0	.8814	.0178	.8813	.0156	.9156	.0136	.8781
63	.0	.8814	.0163	.8976	.0141	.9297	.0125	.8905
64	.0785	.9599	.0148	.9124	.0122	.9419	.0113	.9019
65	.0	.9599	.0133	.9258	.0102	.9521	.0110	.9129
66	.0	.9599	.0119	.9377	.0084	.9605	.0100	.9228
67	.0	.9599	.0105	.9482	.0070	.9675	.0095	.9324
68	.0	.9599	.0092	.9575	.0059	.9734	.0084	.9408
69	.0	.9599	.0080	.9655	.0051	.9785	.0077	.9485
70	.0	.9599	.0069	.9723	.0042	.9827	.0068	.9553
71	.0313	.9912	.0058	.9781	.0032	.9859	.0064	.9618
72	.0	.9912	.0048	.9830	.0022	.9881	.0053	.9671
73	.0	.9912	.0040	.9870	.0016	.9897	.0052	.9723
74	.0	.9912	.0032	.9902	.0013	.9910	.0047	.9771
75	.0	.9912	.0026	.9928	.0012	.9922	.0040	.9811
76	.0	.9912	.0020	.9948	.0011	.9933	.0036	.9847
77	.0	.9912	.0016	.9964	.0010	.9943	.0030	.9877
78	.0088	1.0000	.0012	.9975	.0008	.9951	.0027	.9905
79	.0	1.0000	.0008	.9984	.0007	.9958	.0021	.9926
80	.0	1.0000	.0006	.9990	.0004	.9962	.0020	.9945
81	.0	1.0000	.0004	.9994	.0003	.9964	.0015	.9960
82	.0	1.0000	.0003	.9996	.0003	.9967	.0012	.9973
83	.0	1.0000	.0002	.9998	.0002	.9969	.0010	.9983
84	.0	1.0000	.0001	.9999	.0001	.9971	.0007	.9989
85	.0	1.0000	.0001	1.0000	.0004	.9975	.0004	.9994
86	.0	1.0000	.0000	1.0000	.0008	.9983	.0002	.9996
87	.0	1.0000	.0000	1.0000	.0006	.9989	.0002	.9998
88	.0	1.0000	.0000	1.0000	.0002	.9990	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0005	.9995	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0005	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 6

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0001	.0001	.0000	.0000	.0	.0000
4	.0	.0	.0001	.0002	.0000	.0000	.0	.0000
5	.0	.0	.0002	.0004	.0000	.0000	.0000	.0000
6	.0	.0	.0003	.0007	.0000	.0000	.0000	.0000
7	.0	.0	.0004	.0011	.0000	.0000	.0000	.0001
8	.0	.0	.0006	.0017	.0000	.0000	.0001	.0002
9	.0	.0	.0008	.0025	.0000	.0000	.0001	.0002
10	.0052	.0052	.0011	.0036	.0001	.0001	.0002	.0004
11	.0	.0052	.0014	.0051	.0001	.0002	.0003	.0007
12	.0	.0052	.0018	.0068	.0002	.0005	.0003	.0010
13	.0	.0052	.0022	.0091	.0004	.0009	.0006	.0015
14	.0	.0052	.0027	.0118	.0007	.0015	.0008	.0024
15	.0	.0052	.0033	.0150	.0010	.0025	.0012	.0035
16	.0	.0052	.0038	.0189	.0014	.0039	.0014	.0050
17	.0285	.0337	.0045	.0234	.0018	.0057	.0017	.0067
18	.0	.0337	.0052	.0286	.0024	.0081	.0025	.0092
19	.0	.0337	.0060	.0345	.0030	.0112	.0029	.0121
20	.0	.0337	.0068	.0413	.0038	.0149	.0035	.0156
21	.0	.0337	.0076	.0489	.0047	.0196	.0044	.0201
22	.0	.0337	.0085	.0574	.0057	.0254	.0059	.0260
23	.0	.0337	.0094	.0668	.0069	.0323	.0066	.0325
24	.0670	.1007	.0103	.0771	.0082	.0405	.0078	.0404
25	.0	.1007	.0113	.0884	.0096	.0501	.0091	.0494
26	.0	.1007	.0123	.1007	.0110	.0610	.0107	.0601
27	.0	.1007	.0133	.1139	.0122	.0733	.0116	.0717
28	.0	.1007	.0143	.1282	.0131	.0863	.0128	.0846
29	.0	.1007	.0153	.1435	.0136	.0999	.0151	.0996
30	.0	.1007	.0162	.1597	.0137	.1137	.0167	.1163
31	.0	.1007	.0172	.1769	.0139	.1276	.0183	.1346
32	.1319	.2326	.0181	.1950	.0144	.1419	.0202	.1549
33	.0	.2326	.0190	.2140	.0155	.1574	.0208	.1757
34	.0	.2326	.0199	.2340	.0173	.1748	.0229	.1986
35	.0	.2326	.0207	.2547	.0196	.1943	.0248	.2234
36	.0	.2326	.0215	.2762	.0220	.2163	.0244	.2478
37	.0	.2326	.0222	.2984	.0245	.2408	.0264	.2742
38	.0	.2326	.0229	.3213	.0273	.2682	.0275	.3017
39	.1734	.4060	.0235	.3448	.0307	.2988	.0274	.3291
40	.0	.4060	.0240	.3688	.0347	.3335	.0292	.3583
41	.0	.4060	.0244	.3932	.0391	.3726	.0288	.3872
42	.0	.4060	.0248	.4180	.0435	.4160	.0290	.4161
43	.0	.4060	.0251	.4431	.0472	.4632	.0298	.4459
44	.0	.4060	.0253	.4684	.0496	.5128	.0302	.4761
45	.0	.4060	.0254	.4938	.0501	.5629	.0291	.5052

ITEM SAMPLE # 6 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
46	.1909	.5969	.0254	.5193	.0483	.6113	.0299	.5351
47	.0	.5969	.0254	.5446	.0440	.6553	.0285	.5635
48	.0	.5969	.0253	.5699	.0377	.6930	.0278	.5913
49	.0	.5969	.0250	.5949	.0304	.7234	.0277	.6190
50	.0	.5969	.0247	.6197	.0237	.7470	.0263	.6453
51	.0	.5969	.0243	.6440	.0186	.7656	.0249	.6702
52	.0	.5969	.0239	.6679	.0155	.7811	.0244	.6946
53	.1555	.7524	.0233	.6912	.0138	.7949	.0233	.7179
54	.0	.7524	.0227	.7139	.0127	.8076	.0221	.7399
55	.0	.7524	.0220	.7359	.0113	.8188	.0216	.7615
56	.0	.7524	.0213	.7572	.0093	.8281	.0201	.7816
57	.0	.7524	.0205	.7777	.0069	.8350	.0191	.8007
58	.0	.7524	.0196	.7973	.0047	.8398	.0177	.8183
59	.0	.7524	.0187	.8161	.0031	.8428	.0159	.8342
60	.1154	.8678	.0178	.8339	.0024	.8452	.0153	.8496
61	.0	.8678	.0168	.8507	.0029	.8481	.0149	.8645
62	.0	.8678	.0159	.8666	.0042	.8524	.0136	.8781
63	.0	.8678	.0149	.8814	.0057	.8581	.0125	.8905
64	.0	.8678	.0138	.8953	.0067	.8647	.0113	.9019
65	.0	.8678	.0128	.9081	.0069	.8716	.0110	.9129
66	.0	.8678	.0118	.9199	.0069	.8785	.0100	.9228
67	.0749	.9428	.0108	.9307	.0076	.8861	.0095	.9324
68	.0	.9428	.0098	.9406	.0097	.8958	.0084	.9408
69	.0	.9428	.0089	.9495	.0133	.9091	.0077	.9485
70	.0	.9428	.0080	.9574	.0169	.9260	.0068	.9553
71	.0	.9428	.0071	.9645	.0185	.9445	.0064	.9618
72	.0	.9428	.0062	.9708	.0168	.9612	.0053	.9671
73	.0	.9428	.0054	.9762	.0127	.9739	.0052	.9723
74	.0423	.9851	.0047	.9809	.0082	.9822	.0047	.9771
75	.0	.9851	.0040	.9849	.0047	.9869	.0040	.9811
76	.0	.9851	.0034	.9883	.0026	.9895	.0036	.9847
77	.0	.9851	.0028	.9911	.0016	.9911	.0030	.9877
78	.0	.9851	.0023	.9933	.0012	.9923	.0027	.9905
79	.0	.9851	.0018	.9952	.0013	.9936	.0021	.9926
80	.0	.9851	.0014	.9966	.0015	.9951	.0020	.9945
81	.0149	1.0000	.0011	.9977	.0014	.9965	.0015	.9960
82	.0	1.0000	.0008	.9985	.0010	.9975	.0012	.9973
83	.0	1.0000	.0006	.9991	.0005	.9979	.0010	.9983
84	.0	1.0000	.0004	.9995	.0002	.9981	.0007	.9989
85	.0	1.0000	.0003	.9997	.0005	.9986	.0004	.9994
86	.0	1.0000	.0002	.9999	.0006	.9991	.0002	.9996
87	.0	1.0000	.0001	1.0000	.0003	.9994	.0002	.9998
88	.0	1.0000	.0000	1.0000	.0001	.9995	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0001	.9996	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0004	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 7

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0001	.0001	.0000	.0000	.0000	.0000
1	.0	.0	.0002	.0003	.0000	.0000	.0	.0000
2	.0	.0	.0005	.0007	.0000	.0000	.0	.0000
3	.0	.0	.0008	.0015	.0000	.0000	.0	.0000
4	.0	.0	.0013	.0029	.0000	.0000	.0	.0000
5	.0	.0	.0020	.0048	.0000	.0000	.0000	.0000
6	.0	.0	.0027	.0075	.0000	.0000	.0000	.0000
7	.0	.0	.0036	.0111	.0001	.0001	.0000	.0001
8	.0	.0	.0046	.0157	.0002	.0004	.0001	.0002
9	.0	.0	.0056	.0213	.0006	.0009	.0001	.0002
10	.0	.0	.0068	.0281	.0012	.0021	.0002	.0004
11	.0	.0	.0080	.0361	.0023	.0044	.0003	.0007
12	.0	.0	.0093	.0454	.0039	.0083	.0003	.0010
13	.0	.0	.0106	.0560	.0062	.0145	.0006	.0015
14	.0	.0	.0119	.0679	.0091	.0236	.0008	.0024
15	.0	.0	.0133	.0812	.0123	.0359	.0012	.0035
16	.0	.0	.0146	.0958	.0154	.0513	.0014	.0050
17	.0	.0	.0159	.1117	.0182	.0695	.0017	.0067
18	.0	.0	.0172	.1290	.0202	.0897	.0025	.0092
19	.0251	.0251	.0185	.1474	.0212	.1109	.0029	.0121
20	.0	.0251	.0197	.1671	.0213	.1321	.0035	.0156
21	.0	.0251	.0208	.1879	.0207	.1528	.0044	.0201
22	.0	.0251	.0218	.2097	.0199	.1727	.0059	.0260
23	.0	.0251	.0228	.2324	.0196	.1923	.0066	.0325
24	.0	.0251	.0236	.2561	.0201	.2123	.0078	.0404
25	.0	.0251	.0244	.2805	.0217	.2341	.0091	.0494
26	.0895	.1146	.0251	.3055	.0246	.2587	.0107	.0601
27	.0	.1146	.0256	.3312	.0285	.2872	.0116	.0717
28	.0	.1146	.0261	.3573	.0330	.3202	.0128	.0846
29	.0	.1146	.0265	.3837	.0374	.3577	.0151	.0996
30	.0	.1146	.0267	.4104	.0413	.3990	.0167	.1163
31	.0	.1146	.0268	.4373	.0442	.4432	.0183	.1346
32	.0	.1146	.0269	.4642	.0458	.4890	.0202	.1549
33	.1571	.2716	.0268	.4910	.0459	.5348	.0208	.1757
34	.0	.2716	.0266	.5176	.0444	.5792	.0229	.1986
35	.0	.2716	.0264	.5440	.0414	.6206	.0248	.2234
36	.0	.2716	.0260	.5700	.0372	.6578	.0244	.2478
37	.0	.2716	.0256	.5956	.0324	.6902	.0264	.2742
38	.0	.2716	.0251	.6207	.0275	.7177	.0275	.3017
39	.0	.2716	.0245	.6451	.0233	.7410	.0274	.3291
40	.1946	.4663	.0238	.6689	.0199	.7609	.0292	.3583
41	.0	.4663	.0231	.6920	.0172	.7781	.0288	.3872
42	.0	.4663	.0223	.7143	.0149	.7929	.0290	.4161
43	.0	.4663	.0215	.7358	.0126	.8056	.0298	.4459
44	.0	.4663	.0206	.7564	.0103	.8159	.0302	.4761
45	.0	.4663	.0197	.7762	.0081	.8240	.0291	.5052

ITEM SAMPLE # 7 CONTINUED

Score	LINEAR PREDICTION Prop.	LINEAR PREDICTION Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	NEGATIVE HYPERGEOMETRIC Cum. Prop.	GUESSING FREE Prop.	GUESSING FREE Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	FREQUENCY DISTRIBUTION Cum. Prop.
46	.0	.4663	.0188	.7949	.0062	.8302	.0299	.5351
47	.1909	.6571	.0178	.8128	.0050	.8352	.0285	.5635
48	.0	.6571	.0169	.8297	.0047	.8398	.0278	.5913
49	.0	.6571	.0159	.8456	.0052	.8451	.0277	.6190
50	.0	.6571	.0150	.8606	.0062	.8512	.0263	.6453
51	.0	.6571	.0140	.8746	.0071	.8583	.0249	.6702
52	.0	.6571	.0130	.8876	.0076	.8659	.0244	.6946
53	.0	.6571	.0121	.8997	.0079	.8738	.0233	.7179
54	.1392	.7964	.0112	.9109	.0084	.8822	.0221	.7399
55	.0	.7964	.0103	.9212	.0095	.8917	.0216	.7615
56	.0	.7964	.0095	.9307	.0111	.9028	.0201	.7816
57	.0	.7964	.0086	.9393	.0128	.9156	.0191	.8007
58	.0	.7964	.0078	.9472	.0139	.9295	.0177	.8183
59	.0	.7964	.0071	.9542	.0138	.9432	.0159	.8342
60	.0	.7964	.0064	.9606	.0124	.9556	.0153	.8496
61	.0952	.8915	.0057	.9663	.0102	.9658	.0149	.8645
62	.0	.8915	.0051	.9713	.0076	.9734	.0136	.8781
63	.0	.8915	.0045	.9758	.0053	.9787	.0125	.8905
64	.0	.8915	.0039	.9797	.0035	.9822	.0113	.9019
65	.0	.8915	.0034	.9832	.0023	.9845	.0110	.9129
66	.0	.8915	.0030	.9861	.0017	.9862	.0100	.9228
67	.0	.8915	.0025	.9887	.0014	.9876	.0095	.9324
68	.0606	.9522	.0022	.9908	.0014	.9890	.0084	.9408
69	.0	.9522	.0018	.9927	.0016	.9906	.0077	.9485
70	.0	.9522	.0015	.9942	.0018	.9925	.0068	.9553
71	.0	.9522	.0013	.9955	.0018	.9942	.0064	.9618
72	.0	.9522	.0010	.9965	.0014	.9957	.0053	.9671
73	.0	.9522	.0008	.9974	.0010	.9966	.0052	.9723
74	.0	.9522	.0007	.9980	.0006	.9973	.0047	.9771
75	.0321	.9842	.0005	.9986	.0004	.9977	.0040	.9811
76	.0	.9842	.0004	.9990	.0003	.9979	.0036	.9847
77	.0	.9842	.0003	.9993	.0002	.9981	.0030	.9877
78	.0	.9842	.0002	.9995	.0001	.9982	.0027	.9905
79	.0	.9842	.0002	.9997	.0001	.9983	.0021	.9926
80	.0	.9842	.0001	.9998	.0000	.9983	.0020	.9945
81	.0	.9842	.0001	.9999	.0000	.9983	.0015	.9960
82	.0120	.9962	.0001	.9999	.0001	.9984	.0012	.9973
83	.0	.9962	.0000	1.0000	.0002	.9987	.0010	.9983
84	.0	.9962	.0000	1.0000	.0002	.9989	.0007	.9989
85	.0	.9962	.0000	1.0000	.0001	.9990	.0004	.9994
86	.0	.9962	.0000	1.0000	.0000	.9990	.0002	.9996
87	.0	.9962	.0000	1.0000	.0003	.9993	.0002	.9998
88	.0	.9962	.0000	1.0000	.0004	.9997	.0001	.9999
89	.0038	1.0000	.0000	1.0000	.0002	.9998	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0001	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 8

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0007	.0007	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0007	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0007	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0007	.0000	.0000	.0000	.0000	.0	.0000
5	.0	.0007	.0000	.0000	.0000	.0000	.0000	.0000
6	.0	.0007	.0000	.0000	.0000	.0000	.0000	.0000
7	.0045	.0051	.0000	.0000	.0000	.0000	.0000	.0001
8	.0	.0051	.0000	.0000	.0000	.0000	.0001	.0002
9	.0	.0051	.0000	.0000	.0000	.0000	.0001	.0002
10	.0	.0051	.0000	.0000	.0000	.0000	.0002	.0004
11	.0	.0051	.0000	.0000	.0000	.0000	.0003	.0007
12	.0	.0051	.0000	.0001	.0000	.0000	.0003	.0010
13	.0	.0051	.0000	.0001	.0000	.0000	.0006	.0015
14	.0161	.0212	.0001	.0002	.0000	.0000	.0008	.0024
15	.0	.0212	.0001	.0003	.0000	.0001	.0012	.0035
16	.0	.0212	.0001	.0004	.0000	.0001	.0014	.0050
17	.0	.0212	.0002	.0005	.0000	.0001	.0017	.0067
18	.0	.0212	.0002	.0008	.0000	.0002	.0025	.0092
19	.0	.0212	.0003	.0010	.0001	.0002	.0029	.0121
20	.0	.0212	.0004	.0014	.0001	.0003	.0035	.0156
21	.0347	.0559	.0005	.0018	.0001	.0005	.0044	.0201
22	.0	.0559	.0006	.0024	.0002	.0006	.0059	.0260
23	.0	.0559	.0007	.0031	.0002	.0009	.0066	.0325
24	.0	.0559	.0009	.0040	.0003	.0012	.0078	.0404
25	.0	.0559	.0011	.0050	.0004	.0016	.0091	.0494
26	.0	.0559	.0013	.0063	.0006	.0022	.0107	.0601
27	.0	.0559	.0015	.0079	.0009	.0031	.0116	.0717
28	.0707	.1266	.0018	.0097	.0015	.0046	.0128	.0846
29	.0	.1266	.0022	.0118	.0026	.0072	.0151	.0996
30	.0	.1266	.0025	.0144	.0040	.0112	.0167	.1163
31	.0	.1266	.0029	.0173	.0058	.0169	.0183	.1346
32	.0	.1266	.0034	.0207	.0076	.0245	.0202	.1549
33	.0	.1266	.0039	.0246	.0091	.0336	.0208	.1757
34	.0	.1266	.0045	.0291	.0099	.0435	.0229	.1986
35	.1191	.2457	.0051	.0342	.0100	.0535	.0248	.2234
36	.0	.2457	.0058	.0400	.0093	.0628	.0244	.2478
37	.0	.2457	.0065	.0464	.0079	.0707	.0264	.2742
38	.0	.2457	.0072	.0537	.0063	.0770	.0275	.3017
39	.0	.2457	.0081	.0617	.0046	.0816	.0274	.3291
40	.0	.2457	.0089	.0707	.0032	.0847	.0292	.3583
41	.1756	.4212	.0099	.0806	.0020	.0867	.0288	.3872
42	.0	.4212	.0108	.0914	.0012	.0879	.0290	.4161
43	.0	.4212	.0119	.1033	.0007	.0886	.0298	.4459
44	.0	.4212	.0129	.1162	.0004	.0890	.0302	.4761
45	.0	.4212	.0140	.1302	.0003	.0893	.0291	.5052

ITEM SAMPLE # 8 CONTINUED

Score	LINEAR PREDICTION Prop.	Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	Cum. Prop.	GUESSING FREE Prop.	Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	Cum. Prop.
46	.0	.4212	.0151	.1453	.0007	.0901	.0299	.5351
47	.0	.4212	.0163	.1616	.0019	.0920	.0285	.5635
48	.2022	.6234	.0174	.1790	.0042	.0962	.0278	.5913
49	.0	.6234	.0186	.1977	.0079	.1041	.0277	.6190
50	.0	.6234	.0198	.2174	.0136	.1177	.0263	.6453
51	.0	.6234	.0209	.2384	.0214	.1391	.0249	.6702
52	.0	.6234	.0221	.2605	.0314	.1705	.0244	.6946
53	.0	.6234	.0232	.2837	.0424	.2129	.0233	.7179
54	.0	.6234	.0243	.3080	.0525	.2654	.0221	.7399
55	.2034	.8268	.0253	.3333	.0591	.3245	.0216	.7615
56	.0	.8268	.0263	.3595	.0603	.3848	.0201	.7816
57	.0	.8268	.0271	.3867	.0558	.4406	.0191	.8007
58	.0	.8268	.0279	.4146	.0468	.4873	.0177	.8183
59	.0	.8268	.0286	.4432	.0356	.5229	.0159	.8342
60	.0	.8268	.0292	.4725	.0246	.5475	.0153	.8496
61	.0	.8268	.0297	.5022	.0154	.5630	.0149	.8645
62	.1300	.9567	.0301	.5323	.0088	.5718	.0136	.8781
63	.0	.9567	.0303	.5625	.0046	.5764	.0125	.8905
64	.0	.9567	.0303	.5928	.0022	.5786	.0113	.9019
65	.0	.9567	.0302	.6231	.0016	.5802	.0110	.9129
66	.0	.9567	.0300	.6530	.0038	.5840	.0100	.9228
67	.0	.9567	.0296	.6826	.0114	.5955	.0095	.9324
68	.0433	1.0000	.0290	.7116	.0262	.6216	.0084	.9408
69	.0	1.0000	.0282	.7398	.0453	.6670	.0077	.9485
70	.0	1.0000	.0273	.7671	.0617	.7287	.0068	.9553
71	.0	1.0000	.0262	.7933	.0687	.7973	.0064	.9618
72	.0	1.0000	.0250	.8183	.0645	.8618	.0053	.9671
73	.0	1.0000	.0237	.8420	.0520	.9139	.0052	.9723
74	.0	1.0000	.0222	.8642	.0363	.9501	.0047	.9771
75	.0	1.0000	.0206	.8847	.0221	.9722	.0040	.9811
76	.0	1.0000	.0189	.9036	.0124	.9845	.0036	.9847
77	.0	1.0000	.0171	.9207	.0070	.9915	.0030	.9877
78	.0	1.0000	.0153	.9360	.0041	.9957	.0027	.9905
79	.0	1.0000	.0135	.9495	.0023	.9980	.0021	.9926
80	.0	1.0000	.0116	.9612	.0011	.9991	.0020	.9945
81	.0	1.0000	.0099	.9710	.0004	.9995	.0015	.9960
82	.0	1.0000	.0081	.9791	.0001	.9996	.0012	.9973
83	.0	1.0000	.0065	.9857	.0001	.9997	.0010	.9983
84	.0	1.0000	.0050	.9907	.0001	.9998	.0007	.9989
85	.0	1.0000	.0037	.9944	.0001	.9999	.0004	.9994
86	.0	1.0000	.0026	.9970	.0000	.9999	.0002	.9996
87	.0	1.0000	.0016	.9986	.0000	.9999	.0002	.9998
88	.0	1.0000	.0009	.9995	.0000	.9999	.0001	.9999
89	.0	1.0000	.0004	.9999	.0000	.9999	.0001	1.0000
90	.0	1.0000	.0001	1.0000	.0001	1.0000	.0	1.0000

RESULTS FOR ITEM SAMPLE # 9

Score	LINEAR PREDICTION		NEGATIVE HYPERGEOMETRIC		GUESSING FREE		FREQUENCY DISTRIBUTION	
	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion	Proportion	Cumulative Proportion
0	.0	.0	.0000	.0000	.0000	.0000	.0000	.0000
1	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
2	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
3	.0	.0	.0000	.0000	.0000	.0000	.0	.0000
4	.0	.0	.0000	.0001	.0000	.0000	.0	.0000
5	.0	.0	.0001	.0001	.0000	.0000	.0000	.0000
6	.0	.0	.0001	.0002	.0000	.0000	.0000	.0000
7	.0	.0	.0002	.0004	.0000	.0000	.0000	.0001
8	.0	.0	.0003	.0006	.0000	.0000	.0001	.0002
9	.0	.0	.0004	.0010	.0000	.0000	.0001	.0002
10	.0	.0	.0005	.0015	.0000	.0000	.0002	.0004
11	.0030	.0030	.0007	.0023	.0000	.0001	.0003	.0007
12	.0	.0030	.0010	.0033	.0001	.0001	.0003	.0010
13	.0	.0030	.0013	.0046	.0001	.0002	.0006	.0015
14	.0	.0030	.0017	.0062	.0001	.0004	.0008	.0024
15	.0	.0030	.0021	.0083	.0002	.0005	.0012	.0035
16	.0	.0030	.0026	.0109	.0002	.0008	.0014	.0050
17	.0	.0030	.0032	.0141	.0003	.0011	.0017	.0067
18	.0175	.0205	.0038	.0179	.0004	.0014	.0025	.0092
19	.0	.0205	.0045	.0224	.0004	.0019	.0029	.0121
20	.0	.0205	.0053	.0276	.0005	.0024	.0035	.0156
21	.0	.0205	.0061	.0337	.0006	.0030	.0044	.0201
22	.0	.0205	.0070	.0408	.0008	.0038	.0059	.0260
23	.0	.0205	.0080	.0488	.0010	.0047	.0066	.0325
24	.0	.0205	.0090	.0578	.0012	.0059	.0078	.0404
25	.0705	.0910	.0101	.0679	.0015	.0074	.0091	.0494
26	.0	.0910	.0112	.0792	.0020	.0095	.0107	.0601
27	.0	.0910	.0124	.0916	.0028	.0123	.0116	.0717
28	.0	.0910	.0136	.1052	.0040	.0162	.0128	.0846
29	.0	.0910	.0148	.1200	.0056	.0218	.0151	.0996
30	.0	.0910	.0160	.1360	.0080	.0298	.0167	.1163
31	.0	.0910	.0172	.1533	.0115	.0413	.0183	.1346
32	.1260	.2170	.0184	.1717	.0167	.0579	.0202	.1549
33	.0	.2170	.0196	.1914	.0240	.0820	.0208	.1757
34	.0	.2170	.0208	.2121	.0335	.1154	.0229	.1986
35	.0	.2170	.0219	.2340	.0443	.1597	.0248	.2234
36	.0	.2170	.0229	.2569	.0547	.2145	.0244	.2478
37	.0	.2170	.0239	.2808	.0627	.2771	.0264	.2742
38	.0	.2170	.0248	.3056	.0662	.3434	.0275	.3017
39	.1847	.4017	.0256	.3311	.0646	.4079	.0274	.3291
40	.0	.4017	.0263	.3574	.0580	.4660	.0292	.3583
41	.0	.4017	.0269	.3843	.0483	.5142	.0288	.3872
42	.0	.4017	.0274	.4117	.0373	.5515	.0290	.4161
43	.0	.4017	.0278	.4395	.0272	.5788	.0298	.4459
44	.0	.4017	.0281	.4676	.0194	.5982	.0302	.4761
5	.0	.4017	.0282	.4958	.0146	.6128	.0291	.5052

ITEM SAMPLE # 9 CONTINUED

Score	LINEAR PREDICTION Prop.	Cum. Prop.	NEGATIVE HYPERGEOMETRIC Prop.	Cum. Prop.	GUESSING FREE Prop.	Cum. Prop.	FREQUENCY DISTRIBUTION Prop.	Cum. Prop.
46	.1972	.5988	.0283	.5241	.0124	.6251	.0299	.5351
47	.0	.5988	.0282	.5523	.0119	.6370	.0285	.5635
48	.0	.5988	0279	.5802	.0121	.6491	.0278	.5913
49	.0	.5988	.0276	.6078	.0121	.6612	.0277	.6190
50	.0	.5988	.0272	.6350	.0117	.6729	.0263	.6453
51	.0	.5988	.0266	.6616	.0114	.6843	.0249	.6702
52	.0	.5988	.0259	.6875	.0119	.6962	.0244	.6946
53	.1690	.7678	.0252	.7126	.0137	.7099	.0233	.7179
54	.0	.7678	.0243	.7369	.0164	.7264	.0221	.7399
55	.0	.7678	.0233	.7603	.0192	.7455	.0216	.7615
56	.0	.7678	.0223	.7826	.0212	.7667	.0201	.7816
57	.0	.7678	.0212	.8038	.0226	.7893	.0191	.8007
58	.0	.7678	.0201	.8239	.0237	.8130	.0177	.8183
59	.1173	.8851	.0189	.8428	.0247	.8377	.0159	.8342
60	.0	.8851	.0177	.8606	.0249	.8626	.0153	.8496
61	.0	.8851	.0165	.8770	.0239	.8865	.0149	.8645
62	.0	.8851	.0152	.8923	.0218	.9082	.0136	.8781
63	.0	.8851	.0140	.9063	.0191	.9273	.0125	.8905
64	.0	.8851	.0128	.9191	.0161	.9433	.0113	.9019
65	.0	.8851	.0116	.9307	.0128	.9561	.0110	.9129
66	.0719	.9570	.0104	.9411	.0094	.9656	.0100	.9228
67	.0	.9570	.0093	.9505	.0063	.9719	.0095	.9324
68	.0	.9570	.0082	.9587	.0039	.9758	.0084	.9408
69	.0	.9570	.0072	.9659	.0027	.9785	.0077	.9485
70	.0	.9570	.0063	.9722	.0023	.9808	.0068	.9553
71	.0	.9570	.0054	.9776	.0024	.9832	.0064	.9618
72	.0	.9570	.0046	.9822	.0024	.9856	.0053	.9671
73	.0333	.9903	.0039	.9861	.0021	.9878	.0052	.9723
74	.0	.9903	.0032	.9893	.0019	.9896	.0047	.9771
75	.0	.9903	.0026	.9919	.0015	.9911	.0040	.9811
76	.0	.9903	.0021	.9940	.0012	.9923	.0036	.9847
77	.0	.9903	.0017	.9957	.0009	.9932	.0030	.9877
78	.0	.9903	.0013	.9970	.0007	.9940	.0027	.9905
79	.0	.9903	.0010	.9979	.0005	.9945	.0021	.9926
80	.0097	1.0000	.0007	.9986	.0003	.9948	.0020	.9945
81	.0	1.0000	.0005	.9991	.0001	.9950	.0015	.9960
82	.0	1.0000	.0003	.9995	.0001	.9950	.0012	.9973
83	.0	1.0000	.0002	.9997	.0000	.9950	.0010	.9983
84	.0	1.0000	.0001	.9998	.0000	.9950	.0007	.9989
85	.0	1.0000	.0001	.9999	.0005	.9955	.0004	.9994
86	.0	1.0000	.0000	1.0000	.0014	.9970	.0002	.9996
87	.0	1.0000	.0000	1.0000	.0011	.9981	.0002	.9998
88	.0	1.0000	.0000	1.0000	.0004	.9985	.0001	.9999
89	.0	1.0000	.0000	1.0000	.0008	.9993	.0001	1.0000
90	.0	1.0000	.0000	1.0000	.0007	1.0000	.0	1.0000